

LETTER TO THE EDITOR

Purpuric lesions on the eyelids developed after BNT162b2 mRNA COVID-19 vaccine: another piece of SARS-CoV-2 skin puzzle?

Dear Editor,

Vaccination against SARS-CoV-2 has spread around the world since December 2020. Herein, we describe three patients, with no history of SARS-CoV-2 infection, who developed skin reactions after receiving Pfizer-BioNTech (New York, NY, USA) COVID-19 vaccine. The first patient was a 44-year-old woman who presented with purpuric lesions on the right and left eyelid, respectively, 21 and 25 days after the second dose of the BNT162b2 mRNA vaccine (Fig. 1c,d). The lesions were circumscribed on the upper eyelid, totally asymptomatic and resolved spontaneously after ten days. The second patient was a 63-year-old man who presented similar lesions on the upper eyelid three weeks after the second dose of the vaccine (Fig. 1a,b). The lesions were asymptomatic as well and resolved spontaneously

after 15 days. Both patients had complete laboratory evaluation for coagulation disorders that resulted unremarkable.

The third was a 67-year-old woman who also developed ecchymotic lesions on upper eyelids 10 days after the first dose of the vaccine. The lesions were moderately itchy and resolved spontaneously after 12 days.

Several skin manifestations have been reported in association with coronavirus infection while cutaneous reactions to SARS-CoV-2 vaccines have not yet been well documented in literature.¹ Reported reactions included pain and swelling at injection site and erythematous or urticarial rash, usually associated with itch. The lesions were mostly transient with or without systemic symptoms, except for few cases of angioedema and laryngospasm (usually in patients with a well-known allergic background).² However, these adverse events are unspecific and similar to those reported for other vaccines probably related to immune reaction at injection site or allergic reaction to vaccine components.

Herein, we report three cases of eyelid localized purpuric and ecchymotic reaction after BNT162b2 mRNA COVID-19 vaccine, characterized by appearance after a median of 14 days after injection, absence of symptoms and spontaneous clearing after 10–15 days.



Figure 1 Purpuric lesions on the upper eyelids in patient 2 (a, b) and patient 1 (c, d).

After the launch of vaccination campaign, several new potential adverse events have been reported both with BNT162b2 mRNA and ChAdOx1 adenovirus vaccine. In particular, BNT162b2 mRNA vaccine has been associated both with symptomatic and asymptomatic thrombocytopenia,³ while ChAdOx1 with several cases of a new, life-threatening, thrombotic thrombocytopenic disease resembling the heparin-induced thrombocytopenia, for which the new term vaccine-induced thrombocytopenic thrombosis (VITT) has been proposed.⁴ Besides, in severe cases of COVID-19 microthrombotic phenomenon is considered at the basis of the multiorgan microangiopathy associated with the SARS-CoV-2 infection, so that heparin is now one of the cornerstones of severe COVID-19 treatment.

Finally, during the first and second wave of SARS-CoV-2 pandemic several papers reported purpuric and ecchymotic skin eruption on feet and hands, mostly in otherwise healthy adolescents, currently referred as 'chilblain-like lesions'.^{5–8}

Hence, in general SARS-CoV-2 infection and immune response to the virus may cause, with different pathogenetic mechanisms, endothelial damage and/or uncontrolled activation of coagulation system.

In this context, the observation of purpuric and ecchymotic lesions on eyelids shortly after receiving BNT162b2 mRNA vaccine could represent a form of very mild and localized form of vaccine-induced microangiopathy. Less likely, these lesions may share similar pathogenetic mechanisms with CLL, which are now considered as a virus-induced interferonopathy associated with a strong activation of innate immune system and fast clearance of antibodies.^{9,10}

We are aware that our three cases are not enough to establish a cause–effect relationship between these lesions and the BNT162b2 mRNA vaccine; however, we have described this condition firstly because it is important to report any new postmarketing reaction to vaccine and then to reassure patients of the transience of this clinical manifestation after the first or second dose of BNT162b2 mRNA vaccine. Further larger studies are desirable to confirm our data and possibly to enlighten the pathogenesis of this phenomenon.

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Conflict of interest

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